

AMENDMENTS TO THE CLAIMS:

1.-6 (Cancelled)

7. (New) A method for detecting a device which causes a bit reversal when the device is in trouble, comprising:

demultiplexing a first serial signal into D(1)-D(N) signals,

inputting the D(1)-D(N) signals into devices E(1)-E(N-1) and a channel marking device E(N) respectively,

outputting D'(1)-D'(N-1) signals from the devices E(1)-E(N-1) and a D'(N) signal from the channel marking device E(N), wherein the channel marking device E(N) outputs the D'(N) signal by changing the D(N) signal by a certain changing method,

multiplexing the D'(1)-D'(N) signals into a second serial signal,

finding the D'(N) signal in the second serial signal which has a bit reversal,

detecting a device E(X) which causes the bit reversal based on bit positions of a D'(X) signal and the D'(N) signal, wherein an order of bits between the first and the second serial signals is maintained.

8. (New) The method for detecting a device according to claim 1, wherein the certain changing method is all bits reversal.

9. (New) An apparatus for detecting a device which causes a bit reversal when the device is in trouble, comprising:

means for demultiplexing a first serial signal into D(1)-D(N) signals,

means for inputting the D(1)-D(N) signals into devices E(1)-E(N-1) and a channel marking device E(N) respectively,

means for outputting $D'(1)$ - $D'(N-1)$ signals from the devices $E(1)$ - $E(N-1)$ and a $D'(N)$ signal from the channel marking device $E(N)$, wherein the channel marking device $E(N)$ outputs a $D'(N)$ signal by changing the $D(N)$ signal by a predetermined changing method,

means for multiplexing the $D'(1)$ - $D'(N)$ signals into a second serial signal,

means for finding the $D'(N)$ signal in the second serial signal which has a bit reversal,

means for detecting a device $E(X)$ which causes the bit reversal based on bit positions of a $D'(X)$ signal and the $D'(N)$ signal, wherein an order of bits between the first and the second serial signals is maintained.

10. (New) The apparatus for detecting a device according to claim 3, wherein the predetermined changing method is all bits reversal.